

AET 402

AUTOMATIC EXPLOSION TEMPERATURE TESTER

Product Datasheet

The heat sensitivity is a typical feature of all kinds energetic materials. Determination of the thermal impulse sufficient to starting of fast self accelerated decomposition is very important mainly for safety manufacturing, handling, transportation, and use of explosives, pyrotechnic mixtures and propellants.

Explosion Temperature Tester **AET 402** is designed for determination of the explosion (ignition) temperature at constant heating rate or time-to explosion in isothermal mode.

AET 402 instrument is equipped by the sensors and automatic data acquisition unit for automatic registering of explosion effects. The detection system will recognize the decomposition even if it is not accompanied with sound or light emission. This unique feature helps operator to fully replace visual observation and provides exact testing results without any possibilities of human errors.

APPLICATIONS

A large number of methods are used for practical determination of sensitivity to thermal stimuli. Determination of the explosion temperature is used for small scale laboratory testing. A small sample may either be heated with a predefined temperature raise to the decomposition (explosion temperature test) or held at a constant temperature until explosion occurs (time-to-explosion test).

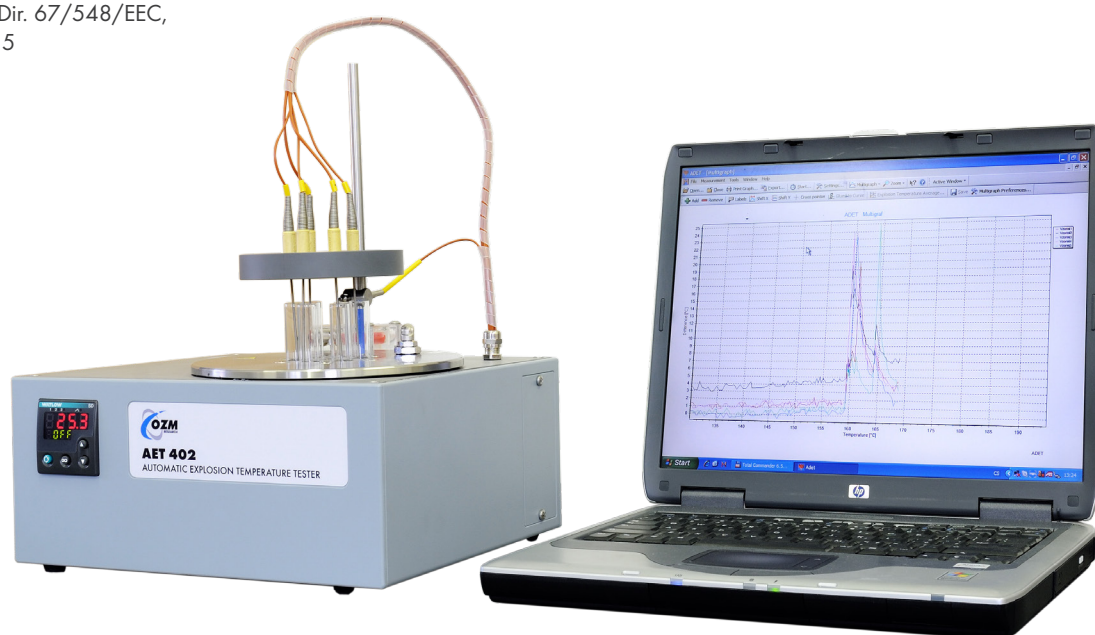
Explosion Temperature Tester **AET 402** is designed to comply with requirements of the following standard of testing:

- STANAG 4491 and Testing Methods of Annex V to Dir. 67/548/EEC, Method A-15

INSTRUMENT DESCRIPTION

AET 402 consists of a heating block with 6 holes filled by a small amount of Rose's metal (for better heat transfer). The temperature of the block is controlled by a precise digital temperature controller. The heating block is surrounded by a stainless-steel water-filled isothermal jacket which protects the instrument casing from excessive heat released during the course of a test, and also accelerates the cooling of the heating block once the test has been finished in order to speed up the preparation for another test. The measurement of up to 5 samples can be

carried out simultaneously. Unit for automatic registering of the explosion including 5 pieces of explosion sensors had been incorporated. Mercury thermometer is replaced by sheathed thermocouples inserted directly into the reference test tube. The explosion of the samples are detected by 5 independent explosion sensors inserted in the glass test tubes above the sample. Experimental data is being recorded continuously to a personal computer running our instrument control, data acquisition and evaluation software ADET for Windows.



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TECHNICAL PARAMETERS

Temperature range:	20 - 400 °C
Heating rate:	0.1 - 20 °C.min ⁻¹
Cooling rate:	approx. 400 °C.hour ⁻¹
Accuracy:	±0.1 °C for 5 °C.min ⁻¹ heating rate
Typical sample weight:	200 mg of non-primary explosive materials 25 mg of primary explosives

STANDARD INSTRUMENT PARTS

AET402-MU6	Main unit - heating block (6 holes) - temperature controller
AET402-DAQ6	Inbuilt 6 channels data acquisition unit - temperature sensor
AET-S	Explosion sensor set of 5 pcs
ADET 2	- instrument control - data acquisition and evaluation - supports Microsoft Windows 10, 8.1, 8 and 7
Accessories	Accessories - spatula - plastic hose (diameter 4 mm, length 4 m) - pincers - power cable - fitting 1/2" - 4 mm

CONSUMABLES

AET-GTT	Glass test tubes, set of 200 pcs Diameter 14 mm, length 90 mm
R-metal	Rose's metal ingot, m.p. 92-96 °C - approx 250 g

OPTIONAL ACCESSORIES

DAEU	Data Acquisition and Evaluation Unit
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MANUFACTURING NOTE

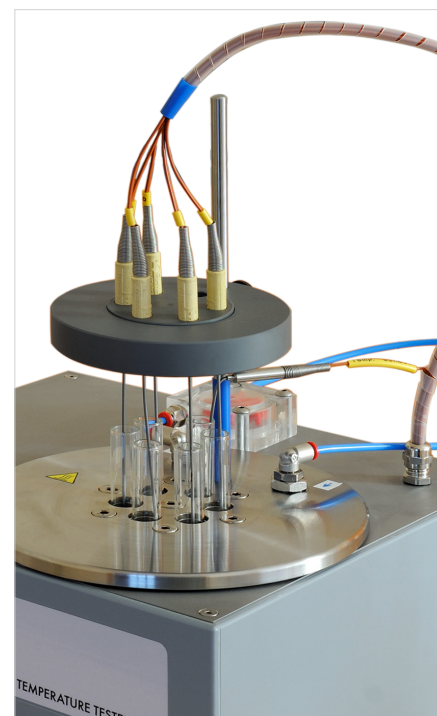
The product is manufactured according to relevant EU directives and manufacturing standards.

SHIPPING DATA

Package dimensions (L x W x H):	41 x 52 x 30 cm
Package gross weight:	14 kg
Custom code:	9031 20 00

INSTALLATION REQUIREMENTS

Space requirements - Main unit: L x W x H: 30 x 30 x 14 (28) cm; Weight: 6 kg
Space requirements - Data acquisition unit: L x W x H: 41 x 32 x 32 cm; Weight: 3.5 kg
Electric power source: 230 V / 50 Hz, 1000 W
Tap water source for cooling: min. 30 dm ³ .hour ⁻¹
Fume hood or local exhaust for heating block unit



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